The Fauna of Akkeshi Bay
XXIV. Entoprocta[1)]

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(With 6 Text-figures)

Concerning the Entoproct fauna of northern Japan, there have been published only two reports of Toriumi (1949, 1951). He reported 12 species in 5 genera totally, of which 6 were described as new to science, from the Pacific coast of Miyagi Prefecture. For the past several years collections of shallow-water Entoprocts were made by Prof. A. Ichikawa, Dr. S. Okuda, Mr. M. Munakata and myself around the coast of Hokkaido, especially in Akkeshi Bay. The present paper is based on these collections and elucidates 5 species including 3 new species as follows :

1. *Loxosoma okudai* n. sp.
2. *Loxosoma akkeshiense* n. sp.
3. *Pedicellina ichikawai* n. sp.
4. *Barentsia discreta* (Busk)
5. *Barentsia gracilis* Sars

I express here my gratitude to Prof. T. Uchida for his kind guidance and encouragement. I am also indebted to Prof. A. Ichikawa, the late Dr. S. Okuda and Mr. M. Munakata for their kindness for placing materials at my disposal, and also to Mr. S. Mawatari for his help in securing the literature.

Family LOXOSOMATIDAE

Loxosoma okudai n. sp.

(Figs. 1 and 2)

The specimens were found attached on the body surface of the sedentary polychaete, *Scalibregma inflatum*, from Akkeshi Bay.

It is a small species. The total length measured from the basal end of the stalk to the anterior margin of the lophophore varies between 0.34 and 0.56 mm in length, with average length of calyx 0.32 mm and of stalk 0.16 mm. The calyx width is about 0.35 mm. The calyx is rather inverted triangular in shape, with an ala on each lateral side. The tentacles are short and small, appearing to be 10, 11 or 12 in number and very rarely 13. The stomach is provided with

1) Contributions from the Akkeshi Marine Biological Station, No. 83.

well-developed lobes. The stalk is short, being about a half the length of the calyx in rather contracted state. No foot-gland is observable in the stalk. The buds are usually 0–2 in number on each side, attaining 6 in greatest number; it is possible, however, that the maximum number may be greater.

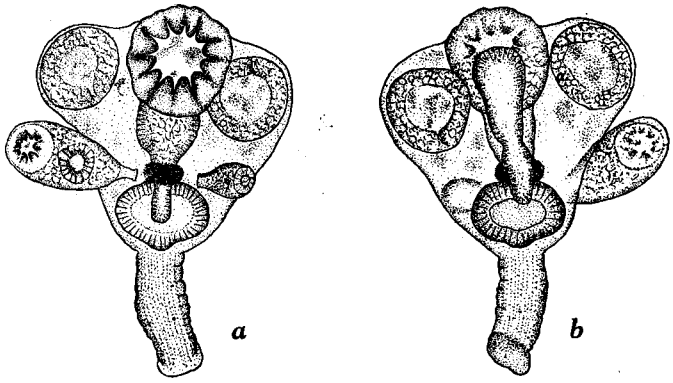

Fig. 1. *Loxosoma okudai* n. sp.
a. Ventral view, ×55. b. Dorsal view, ×55.

In July and August, 1943, a certain number of the present species were found by Dr. Okuda from Akkeshi Bay. Recently several specimens were also found from the same locality by the author. The specimens are always growing on the external body surface of the sedentary polychaete, *Scalibregma inflatum*, which inhabits the mud of zostera-beds in Akkeshi Bay. It occurs mostly on the dorsal surface and on the interparapodial region of the worm, and a few are also found along the ventral median furrow. It is roughly restricted to the posterior half of the worm. It lies more or less at right angles to the surface of the worm. In 1943 the species was found on a rather rare percentage of *Scalibregma* collected. Out of a total 17 *Scalibregma* collected in July and August 1943, only 3 were infected. On the other hand, the author found the species on all 5 individuals of *Scalibregma* collected in June 1955.

Among the specimens of the species on the body surface of the worm which were examined in June 1955, the author found a great number of minute bodies. In closer examination it was revealed that these are the newly attached larvae of the present species. These are 0.12–0.14 mm in total length, elliptical or ovoid in shape and with a short slender stalk. The whole body surface is covered with a thin cuticle and the larval ciliary bands are already disappeared entirely. The rudiments of tentacles, alimentary canal and others are observed through the cuticle, but the detailed structure of them is not ascertained from the present materials. The stalk is cylindrical, not expanded at the basal end, and varies in

length from a half of the calyx to surpassing the calyx. A foot-gland is present in the stalk.

This new species resembles *L. studiosorum* Toriumi, 1951, but is distinguishable from the latter by the form of the calyx and the absence of the foot-gland. The species is also distinguishable from *L. shizugawaense* Toriumi 1949 by the small size and the small number of the tentacles.

This species is named in honour of the late Dr. S. Okuda who firstly collected the species.

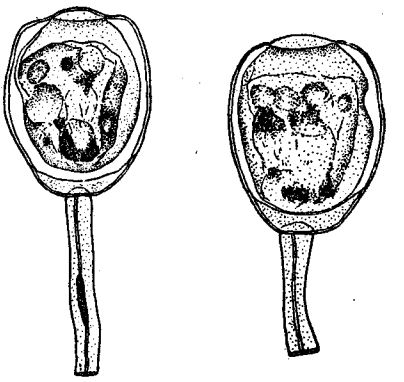

Fig. 2. *Loxosoma okudai* n. sp. Newly attached larvae, ×400.

Loxosoma akkeshiense n. sp.

(Fig. 3)

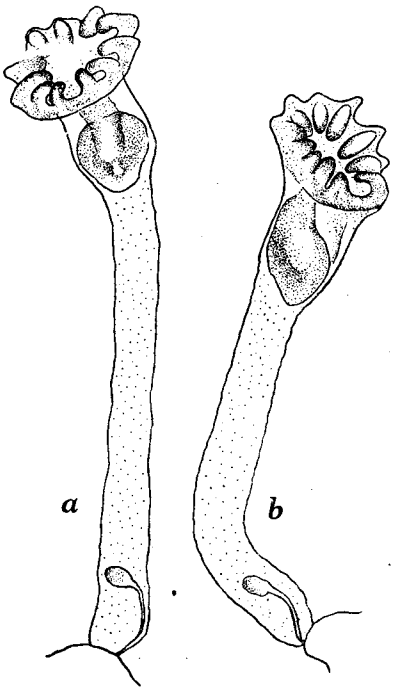

Fig. 3. *Loxosoma akkeshiense* n. sp.
a. Ventral view, ×70.
b. Sublateral view, ×70.

The specimens were found attached on the body surface of the sedentary polychaete, *Amphitrite cirrata* (O. F. Müller), from Akkeshi Bay.

The polypide is relatively large in size. The total length including the long stalk attains 1.2 mm in extended state. The calyx is rather small, 0.35–0.40 mm in length and about 0.3 mm in width, with the large lophophore at the terminal end while without the lateral alae. The tentacles are short and in most cases 11 in number but sometimes 10 or 12. The calyx contains a large stomach. The stalk is usually very long, being about twice or more as long as the calyx. It is nearly cylindrical in form, without any lateral wing-like expansions. A well-developed foot-gland is present at the basal part of the stalk. The buds are entirely absent in the present specimens.

In June-August, 1954 and 1955, several specimens were found by the author from Akkeshi Bay. The specimens are always growing on the sedentary polychaete, *Amphitrite cirrata*, mostly attached on its

abdominal neuropodia. These are found on nearly all the abdominal neuropodia of the polychaete, and some are also found on the body surface near the abdominal neuropodia. It lies almost at right angles to the surface of the worm.

The new species is easily distinguished from the former species of *Loxosoma* by its large size and long stalk. It resembles in general form a European species *L. phascolosomatum*, but is clearly different from the latter in the presence of the foot-gland in the stalk.

Family PEDICELLINIDAE

Pedicellina ichikawai n. sp.

(Fig. 4)

The species has larger size. It attains 6 mm in total length and can be easily found out at its locality with naked eyes. The calyx is usually 0.8–1.2 mm in length and vase-like in shape. It is slightly constricted at somewhat below the top. Surrounding the lophophore base and the basal half of tentacles, there is a distally expanded filamentous outgrowth from the top of the calyx. The tentacles are rather long, 15–17 in number. The surface of the calyx is entirely smooth. The stalk attains 4.5 mm in length and 0.3 mm in width. It is distinctly sepa-

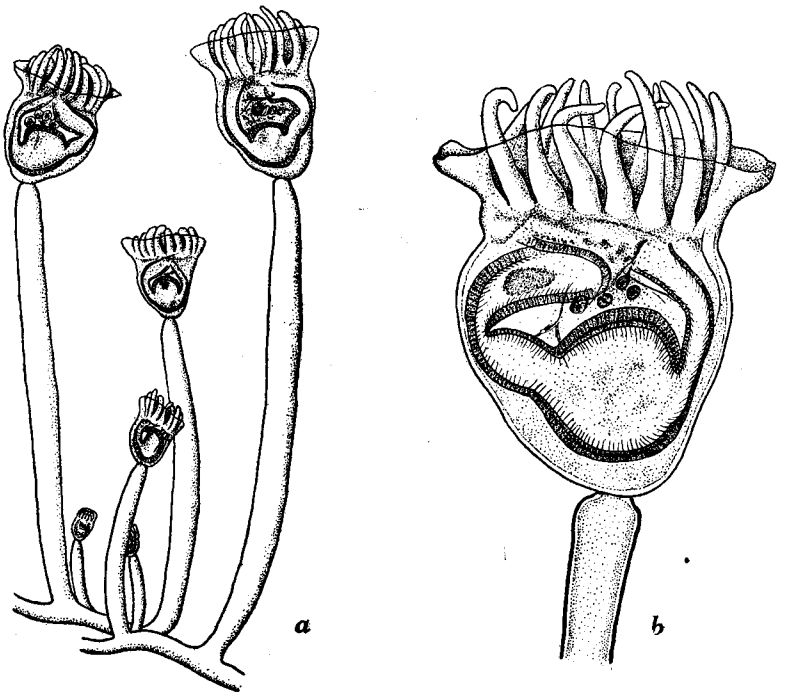

Fig. 4. *Pedicellina ichikawai* n. sp. a. A part of colony, ×16. b. Calyx and upper part of stalk, ×35.

rated from the calyx by a narrow constriction. The stalk is straight and almost cylindrical, slightly tapering up- and downwards. The surface of the stalk is entirely smooth, destitute of any spines or processes which are frequently present in other *Pedicellina*. The base of the stalk puts out the stolons which run over and adhere to a substratum. No septa are present in the stolon.

A considerable number of specimens of the present species were found in Akkeshi Bay attached to such different substrata as rocks, hydroids, bryozoans and marine algae between tide-marks.

The species is similar to *P. nutans* in general form and the smooth stalk, but can be easily distinguished from the latter in the following features ; the large size, the cylindrical stalk, and the collar-like expansion of the calyx.

This species is named in honour of Prof. A. Ichikawa to whom the author indebted for putting the materials at his disposal.

Barentsia discreta (Busk)

(Fig. 5)

Ascopodaria discreta : Busk, 1886, p. 44, figs. 6–12.
Ascopodaria misakiensis : Oka, 1890, p. 233.
Barentsia misakiensis : Oka, 1895, p. 76, pl. 2, figs. 1–8.
Barentsia discreta : Harmer, 1915, p. 29, pl. 2, figs. 8, 9 ; Okada & Mawatari, 1938, p. 446 ; Toriumi, 1949, p. 225, fig. 3 ; ————, 1951, p. 19, fig. 24.

The materials were collected attached on hydroids, bryozoans and marine algae.

The polypides attain 9.5 mm in total length. They arise from jointed, creeping stolons. Two or three shoots of the stolon radiate out from the base of each polypide. The calyx attains 1.3 mm in length and width. The tentacles are about 20 in number. The stalk is long and slender, with a muscular enlargement on its basal end. Some specimens from Akkeshi, however, bear exceptionally a muscular node in the middle of the stalk. The stalk is becoming slightly wider upwards, covered with a thick cuticle, the inner layer of which perforated with numerous pores. The basal muscular enlargement is smooth, and white in colour.

The species is widely distributed in Japanese waters and is previously known from Seto, Misaki and Matsushima. Many specimens were rather commonly found from Akkeshi and Muroran between tide-marks.

Barentsia gracilis Sars

(Fig. 6)

Barentsia gracilis : Harmer, 1915, p. 30, pl. 2, fig. 10 ; Cori, 1930, p. 62, figs. 15, 62.

The materials were occasionally collected together with *B. discreta*.

The polypides are smaller than the former species, attaining 5.0 mm in largest ones. The calyx is 0.3–0.6 mm in length and width. The tentacles are

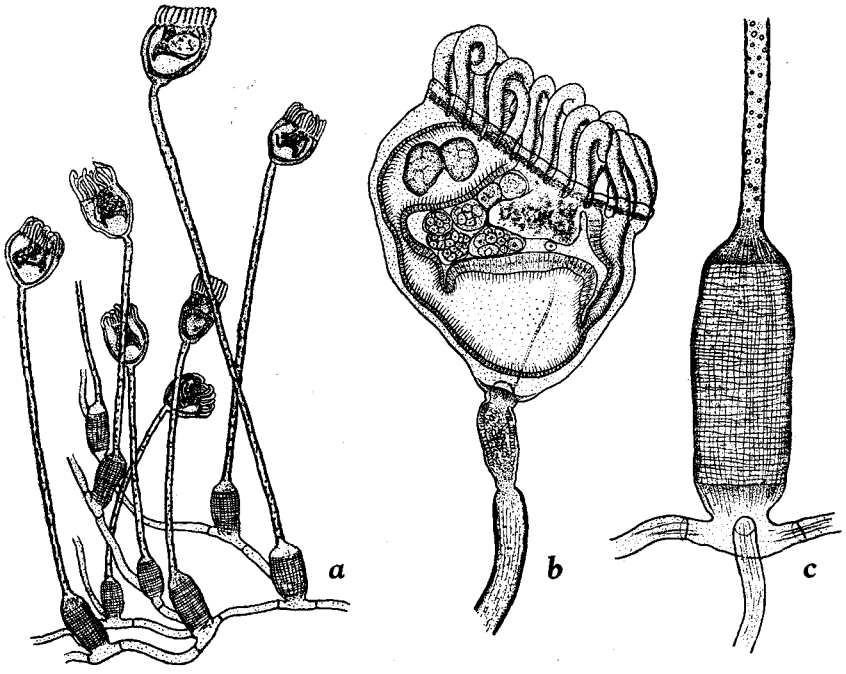

Fig. 5. *Barentsia discreta* (Busk). a. A part of colony, ×12. b. Calyx and upper part of stalk, ×45. c. Basal part of stalk, ×45.

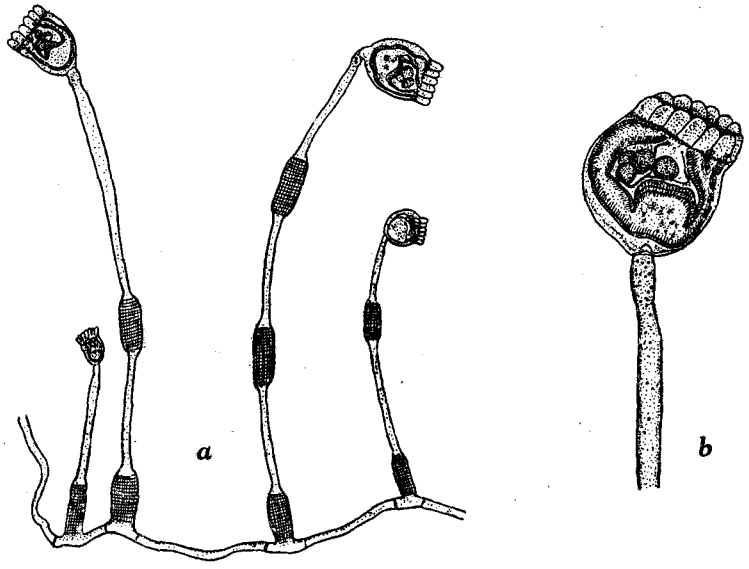

Fig. 6. *Barentsia gracilis* Sars. a. A part of colony, ×16. b. Calyx and upper part of stalk, ×40.

14–17 in number. The stalk is long and slender, interrupted by 1–3 muscular enlargements which have rather smooth surface. The inner layer of the stalk is similar to the former species in having numerous penetrated funnel-shaped pores. These are, however, not remarkable as in the former species. Usually the pores occur most remakably between the basal muscular enlargement and the next one, and are becoming more scarce upwards.

The species may be easily distinguished from the former species in number of the muscular enlargements. Though Toriumi (1951) reported *B. geniculata* from Matsushima Bay, it seems to the author that his materials will be referable to the present species.

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